FINANCIAL ASSISTANCE
FUNDING OPPORTUNITY ANNOUNCEMENT

U.S. Department of Energy
Idaho Operations Office

Radioisotope Power Systems (RPS)

Funding Opportunity Number: DE-PS07-05ID14711

Announcement Type: Initial

CFDA Number: 81.121

Issue Date: 08/25/2005

Pre-Application Due Date: Not Applicable

Application Due Date: 10/11/2005 – No later than 8:00 pm Eastern Time

.

NOTE: NEW REQUIREMENTS FOR GRANTS.GOV

Where to Submit: Applications must be submitted through Grants.gov to be considered for award.

Registration Requirements: There are several one-time actions you must complete in order to submit an application through Grants.gov (e.g., obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number, register with the Central Contract Registry (CCR), register with the credential provider, and register with Grants.gov). See http://www.grants.gov/GetStarted. Use the Grants.gov Organization Registration Checklist at http://www.grants.gov/assets/OrganizationRegCheck.doc to guide you through the process. Designating an E-Business Point of Contact (EBiz POC) and obtaining a special password called an MPIN are important steps in the CCR registration process. Applicants, who are not registered with CCR and Grants.gov, should allow at least 14 days to complete these requirements. It is suggested that the process be started as soon as possible.

Questions: Questions relating to the registration process, system requirements, how an application form works, or the submittal process must be directed to Grants.gov at 1-800-518-4726 or support@grants.gov. Part VII of this announcement explains how to submit other questions to DOE.

Application Receipt Notices

After an application is submitted, the authorized organization representative (AOR) will receive a series of four e-mails. It is extremely important that the AOR watch for and save each of the emails. It may take up to two (2) business days from application submission to receipt of email Number 2. You will know that your application has reached DOE when the AOR receives email Number 4. You will need the Submission Receipt Number (email Number 1) to track a submission. The titles of the four e-mails are:

Number 1 - Grants.gov Submission Receipt Number
Number 2 - Grants.gov Submission Validation Receipt for Application Number
Number 3 - Grants.gov Grantor Agency Retrieval Receipt for Application Number
Number 4 - Grants.gov Agency Tracking Number Assignment for Application Number

VERY IMPORTANT – Download PureEdge Viewer: In order to download the application package, you will need to install PureEdge Viewer. This small, free program will allow you to access, complete, and submit applications electronically and securely. For a free version of the software, visit the following web site: http://www.grants.gov/DownloadViewer.

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PART I – FUNDING OPPORTUNITY DESCRIPTION

A. BACKGROUND

The Department of Energy's Office of Space and Defense Power Systems (NE-50) program is developing new nuclear concepts and technologies, including new small radioisotope power systems (RPS) technologies. Under this program announcement, DOE plans to support the development of promising design concepts for small RPS technologies that could have multiple scientific applications, including use on future NASA missions.

RPSs have been used for numerous, highly successful space applications, including the Apollo lunar missions, the Viking Mars landers, and the Pioneer, Voyager, Ulysses, Galileo and Cassini outer planetary probes. In addition to being able to operate independent of orientation to and distance from the sun, RPSs are typically long-lived, rugged, compact, highly reliable, and relatively insensitive to radiation and other environmental effects. As such, they are ideally suited for missions involving long-duration, autonomous operations in the extreme environments of space and planetary surfaces.

Currently RPS units used on the space program provide power levels ranging from ten to several hundred watts. The increased use of smaller spacecraft over the last decade, along with studies of new potential science applications, has suggested the need for RPSs yielding much lower power levels. Such power supplies have the potential to extend the capability of small science payloads and instruments, and to enable applications such as:

1. Long-lived meteorological/seismological stations broadly distributed across planetary surfaces;
2. Small landers at extreme latitudes or in regions of low solar flux;
3. Surface and atmosphere-based mobility systems;
4. Subsurface probes, including impactors and autonomous boring devices; and
5. Deep space micro-spacecraft and sub-satellites.

Such units could also find application in future human exploration missions involving use of monitoring stations and autonomous devices, similar to the Apollo Lunar Surface Experiments Package (ALSEP) units deployed on the Moon during the Apollo program.

Although flight-qualified RPS units in this size and power range do not presently exist, their potential to support a broad range of exploration tasks has led NASA and the DOE to consider the development of small RPS units such that they might be available for missions by the early part of the next decade. Starting in 2003, NASA's Science Mission Directorate and DOE convened a series of studies and technical interchange meetings to review the potential applications, associated requirements, and methodology for pursuing development of small RPS. See Reference Document No. 1 (a 122 page pdf file) entitled "Enabling Exploration with Small Radioisotope Power Systems" available at www.id.doe.gov/PSD/PSDHomepage.htm.

B. STATEMENT OF OBJECTIVES

The objective of this project is to provide design concepts for two different sized (RPS). These design concepts may have multiple applications, including the National

Aeronautics and Space Administration (NASA) space exploration missions during the next decade. The two sizes fall in the ranges of 10-100 milliwatts (milliwatt) and 1-20 watts (multiwatt) of electrical power output.

1. MILLIWATT RPS (10-100 MILLIWATTS)

In the absence of detailed design requirements, DOE is interested in RPSs to serve as logical building blocks for power systems on missions with requirements in the range of 10-100 milliwatts electric (mWe). The proposed generator point conceptual design shall fall within that range. The primary technical requirements are long life, high specific power (mWe/kg) and high specific volume (mWe/cm^3). NASA may decide to field units as early as 2011; hence, the focus is on concepts with minimal technology development needs.

The power conversion subsystem design shall be based on application of mature technologies. Thermoelectric conversion is of particular interest. For example, a BiTe milliwatt thermoelectric module was developed under contract to DOE, and life tests are continuing under contract to NASA. See Reference Document No. 2 (a five (5)-page presentation) entitled “Bismuth-Telluride Module for Milliwatt Generators” available at www.id.doe.gov/PSD/PSDHomepage.htm. Other power conversion technologies will be considered, but the technical maturity should be comparable to this BiTe module, including supporting data for predicting lifetime performance.

The RPS conceptual design shall be based on the Radioisotope Heater Unit (RHU), or multiples thereof. The Light Weight Radioisotope Heater Unit (RHU), which produces one watt of thermal power and has been used extensively on prior NASA missions, shall serve as the heat source technology for the milliwatt systems developed for this project. In addition, the proposal may include a variation of the design employing multiple RHU capsules in modified aeroshell(s). See Reference Document No. 3 (a 60 page file) entitled “Heat Source Options for Small Radioisotope Power Systems” available at www.id.doe.gov/PSD/PSDHomepage.htm.

The milliwatt RPS concept should take into account the usual operational and nuclear safety considerations including:

- Ground handling, storage and transportation
- Radioisotope heat source installation
- Spacecraft integration and launch environments
- Launch abort and reentry
- Planetary entry and landing missions
- Deep space planetary flyby and orbital missions

Basic requirements for any future operational milliwatt RPS are as follows:

1. The RPS concept shall be designed with multi-mission capability, i.e., capable of long-lived operation in space and on planetary surfaces, including but not limited to those with atmospheres (such as Mars).

2. The RPS concept shall be compatible and capable of operation in a standard air environment during ground handling prior to launch.

3. Nominal heat source output at launch (beginning of mission) is one watt (t) per RHU capsule.

4. Operational lifetime
   a. Seven (7) years required
   b. Fourteen (14) years – goal

5. Output voltage shall not be less than five (5) volts DC at end of design lifetime

6. Two waste heat rejection options shall be evaluated:
   a. Directly mounted to a spacecraft cold plate at 0^0C (no RPS radiator)
   b. Radiation to deep space or Mars surface (with RPS radiator)

7. The RPS concept shall be designed to withstand a static load of 40 g in any direction:

   For missions that could potentially involve high landing loads, a desirable goal is for the RPS design to withstand a 600 to 5000 g shock load in any direction. However this is not a requirement.

MILLIWATT RPS TECHNICAL OBJECTIVES

Conceptual design and critical technologies – the estimated duration is less than six (6) months.

1. Complete conceptual design of the fueled milliwatt RPS unit, including mass, dimensions, and power vs. time.

2. Complete conceptual design of an electrically heated engineering test article.

3. Identify component tests for critical technologies that require further development.

4. Identify any potential safety issues uniquely intrinsic to the design.

5. Present mid-term and final briefings to DOE and NASA management.

6. Prepare Final Technical Report on work.

2. MULTIWATT RPS (1-20 WATTS)

In the absence of detailed design requirements, DOE is interested in RPSs to serve as logical building blocks for power systems on missions with requirements in the range of one to tens of watts electric (We). The power requirement for individual multiwatt units has not been determined at this point, but could range from one (1) to twenty (20) We. The proposed generator point design shall fall within that range. Although it is desirable for the technology to be applicable over the full range of one (1) to twenty (20) We, such scalability is not a requirement.

Other key technical requirements are long life, high specific power (We/kg) and high specific volume (We/cm^3). NASA may decide to field units as early as 2013; hence, the focus is on system concept with limited technology development needs. The power conversion subsystem concept shall be based on relatively mature technologies, including supporting data for predicting lifetime performance.

The General Purpose Heat Source (GPHS), which produces approximately 250 watts of thermal power and is the thermal building block for the U.S.'s current Radioisotope Power Systems (RPS), shall serve as the heat source technology for the multiwatt systems developed under this procurement. For the multiwatt RPS, the design shall be based on a single Step 2 GPHS, or on a partial Step 2 GPHS, using the existing fuel capsules (i.e., one-half or one-quarter of a GPHS module).

See Reference Document No. 4 (a presentation consisting of 42 pages) entitled "Small Radioisotope Power Source Concepts" available at www.id.doe.gov/PSD/PSDHomepage.htm.

The multiwatt RPS concept should take into consideration the usual operational and nuclear safety considerations including:

- Ground handling, storage and transportation
- Radioisotope heat source installation
- Spacecraft integration and launch environments
- Launch abort and reentry
- Planetary entry and landing missions
- Deep space planetary flyby and orbital missions

Basic requirements for any future operational multiwatt RPS are as follows:

1. The RPS concept shall be designed with multi-mission capability, i.e., capable of long-lived operation in space and on planetary surfaces, including but not limited to those with atmospheres (such as Mars).

2. The RPS concept shall be compatible with and capable of operation in a standard air environment during ground handling prior to launch.

3. The RPS concept shall be capable of providing partial power to the spacecraft during launch and in-transit space flight.

4. Nominal heat source input at launch (beginning of mission)
   a. 250 watts thermal per GPHS module
   b. 62.5 watts thermal per fueled clad

5. Operational lifetime
   a. Seven (7) years required
   b. Fourteen (14) years - goal

6. Output voltage shall not be less than 5 volts DC at end of design lifetime.

7. Two waste heat rejection options shall be evaluated:
   a. Directly mounted to a spacecraft cold plate at 25 ^{0}C (no RPS radiator)

b. Radiation to deep space or Mars surface (with RPS radiator).

8. The RPS concept shall be designed to withstand a 40 g static load in any direction.

MULTIWATT RPS TECHNICAL OBJECTIVES

Conceptual design and critical technologies – the estimated duration is less than six (6) months.

1. Complete conceptual design of the fueled multiwatt RPS unit, including mass, dimensions, and power vs. time.

2. Complete conceptual design of an electrically heated engineering test article.

3. Identify critical technologies that require further development.

4. Identify any potential safety issues uniquely intrinsic to the design.

5. Present mid-term and final briefings to DOE and NASA management.

6. Prepare Final Technical Report on work.

PART II – AWARD INFORMATION

A. TYPE OF AWARD INSTRUMENT.

DOE anticipates awarding cooperative agreements (See Section VI.B.2 Statement of Substantial Involvement)

B. ESTIMATED FUNDING.

- A total of approximately $500,000 is expected to be available for new awards under this announcement.

C. MAXIMUM AND MINIMUM AWARD SIZE.

- Absolute Ceiling (i.e., the maximum amount for an individual award made under this announcement): $200,000 for multiwatt award, $50,000 for milliwatt award

- Floor (i.e., the minimum amount for an individual award made under this announcement): None

D. EXPECTED NUMBER OF AWARDS.

- Under this announcement, DOE expects to make the following number of awards for each Program /Topic Area:

Program/Topic Area:	Number of Awards
Multiwatt	Up to 2
Milliwatt	Up to 2

E. ANTICIPATED AWARD SIZE.

- While the maximum award size (i.e., the ceiling) is $200,000 for multiwatt and $50,000 for milliwatt, DOE anticipates that awards will be in the $50,000 to $200,000 range for the total project period.

F. PERIOD OF PERFORMANCE.

- DOE anticipates making awards that will run up to six (6) months.

G. TYPE OF APPLICATION.

DOE will accept new applications under this announcement.

NOTE: You must submit a separate application for each type of RPS, i.e., “multiwatt” and “milliwatt”.

PART III - ELIGIBILITY INFORMATION

A. ELIGIBLE APPLICANTS.

- All types of domestic applicants are eligible to apply, except other Federal agencies, Federally Funded Research and Development Center (FFRDC) Contractors, and nonprofit organizations described in section 501(c)(4) of the Internal Revenue Code of 1986 that engaged in lobbying activities after December 31, 1995.

B. COST SHARING.

- Cost sharing is not required, but it is encouraged.

A. OTHER ELIGIBILITY REQUIREMENTS.

- **Federally Funded Research and Development Center (FFRDC) Contractors**. FFRDC applicants are not eligible for an award under this announcement, but they may be proposed as a team member subject to the following guidelines:

  Authorization for non-DOE FFRDCs. The Federal agency sponsoring the FFRDC contractor must authorize in writing the use of the FFRDC contractor on the proposed project and this authorization must be submitted with the application. The use of a FFRDC contractor must be consistent with the contractor's authority under its award and must not place the FFRDC contractor in direct competition with the private sector.

  Authorization for DOE FFRDCs. The DOE/NNSA cognizant contracting officer for the FFRDC operations contract must authorize in writing the use of a DOE/NNSA FFRDC contractor on the proposed project and this authorization must be submitted with the application. The following wording is acceptable for this authorization.

  > "Authorization is granted for the _____ Laboratory to participate in the proposed project. The work proposed for the laboratory is consistent with or complimentary to the missions of the laboratory, will not adversely impact execution of the DOE/NNSA assigned programs at the laboratory, and will not place the laboratory in direct competition with the domestic private sector."

  Value/Funding. The value of, and funding for, the FFRDC contractor portion of the work will not normally be included in the award to a successful applicant. Usually, DOE/NNSA will fund a DOE/NNSA FFRDC contractor through the DOE field work proposal system and other FFRDC contractors through an interagency agreement with the sponsoring agency.

  Cost Share. The applicant's cost share requirement will be based on the total cost of the project, including the applicant's and the FFRDC contractor's portions of the effort. FFRDC contractor costs are included in the government cost share.

  FFRDC Contractor Effort: The FFRDC contractor effort, in aggregate, shall not exceed 20% of the total estimated cost of the project, including the applicant's and the FFRDC contractor's portions of the effort.

  Responsibility. The applicant, if successful, will be the responsible authority regarding the settlement and satisfaction of all contractual and administrative issues, including but not

limited to, disputes and claims arising out of any agreement between the applicant and the FFRDC contractor.

PART IV – APPLICATION AND SUBMISSION INFORMATION

A. ADDRESS TO REQUEST APPLICATION PACKAGE.

- Application forms and instructions are available at Grants.gov. To access these materials, go to http://www.grants.gov, select "Apply for Grants," and then select "Download Application Package." Enter the CFDA and/or the funding opportunity number located on the cover of this announcement and then follow the prompts to download the application package. NOTE: You will not be able to download the Application Package unless you have installed PureEdge Viewer (See: http://www.grants.gov/DownloadViewer).

B. LETTER OF INTENT AND PRE-APPLICATION.

1. Letter of Intent.

- Letters of Intent are not required.

2. Pre-application.

- Pre-applications are not required.

C. CONTENT AND FORM OF APPLICATION – SF 424 (R&R)

You must complete the mandatory forms and any applicable optional forms (e.g., SF-LLL-Disclosure of Lobbying Activities) in accordance with the instructions on the forms and the additional instructions below**. Files that are attached to the forms must be in Adobe Portable Document Format (PDF) unless otherwise specified in this announcement.**

SF 424 (R&R).
Complete this form first to populate data in other forms. Complete all the required fields in accordance with the pop-up instructions on the form. To activate the instructions, turn on the "Help Mode" (Icon with the pointer and question mark at the top of the form).

1. **RESEARCH AND RELATED Project/Performance Site Location(s).** Indicate the primary site where the work will be performed. If a portion of the project will be performed at any other site(s), identify the site(s).

2. **RESEARCH AND RELATED Other Project Information.**
Complete questions 1 through 5 and attach files in fields 6-11, as necessary. The attached files must comply with the following instructions:

Project Summary/Abstract (Field 6 on the Form)
The project summary/abstract must contain a summary of the proposed activity suitable for dissemination to the publication. It should be a self-contained document that identifies the name of the applicant, the principal investigator(s)/project director, the project title, the objectives of the project, a description of the project, including methods to be employed, the potential impact of the project (i.e., benefits, outcomes), and major participants (for collaborative projects). This document must not include any proprietary or sensitive business information as the Department may make it available to the public. The project summary must not exceed 1 page when printed using standard 8.5" by 11" paper with 1" margins (top, bottom, left and right)

with font not smaller than 11 point. To attach a Project Summary/Abstract, click "Add Attachment."

Project Narrative (Field 7 on the form)
The project narrative must not exceed five (5) pages, including charts, graphs, maps, photographs, and other pictorial presentations, when printed using standard 8.5" by 11" paper with 1 inch margins (top, bottom, left, and right). EVALUATORS WILL ONLY REVIEW THE NUMBER OF PAGES SPECIFIED IN THE PRECEDING SENTENCE. The font must not be smaller than 11 point. Do not include any Internet addresses (URLs) that provide information necessary to review the application, because the information contained in these sites will not be reviewed. To attach a Project Narrative, click "Add Attachment."

The project narrative must include:

- Project Objectives. This section should provide a clear, concise statement of the specific objectives/aims of the proposed project.

- Merit Review Criterion Discussion. The section should be formatted to address each of the merit review criterion and sub-criterion listed in Section V. A. Provide sufficient information so that reviewers will be able to evaluate the application in accordance with these merit review criteria. DOE WILL EVALUATE AND CONSIDER ONLY THOSE APPLICATIONS THAT ADDRESS SEPARATELY EACH OF THE MERIT REVIEW CRITERION AND SUB-CRITERION.

- Project Timetable: This section should outline as a function of time all the important activities or phases of the project, including any activities planned beyond the project period. Successful applicants must use this project timetable to report progress.

- Evaluation Phase: This section must include a plan and metrics to be used to assess the success of the project.

Bibliography & References Cited (Field 8 on the form)
Provide a bibliography of any references cited in the Project Narrative. Each reference must include the names of all authors (in the same sequence in which they appear in the publication), the article and journal title, book title, volume number, page numbers, and year of publication. Include only bibliographic citations. Applicants should be especially careful to follow scholarly practices in providing citations for source materials relied upon when preparing any section of the application. To attach a document for Bibliography and References Cited, click "Add Attachment."

Facilities & Other Resources (Field 9 on the form) This information is used to assess the capability of the organizational resources, including subawardee resources, available to perform the effort proposed. Identify the facilities to be used (Laboratory, Animal, Computer, Office, Clinical and Other). If appropriate, indicate their capacities, pertinent capabilities, relative proximity, and extent of availability to the project. Describe only those resources that are directly applicable to the proposed work. Describe other resources available to the project (e.g., machine

shop, electronic shop) and the extent to which they would be available to the project. To attach a document for Facilities and Other Resources, click "Add Attachment."

Equipment (Field 10 on the form)
List major items of equipment already available for this project and, if appropriate identify location and pertinent capabilities. To attach a document for Equipment, click "Add Attachment."

Other Attachment (Field 11 on the form)
If you need to elaborate on your responses to questions 1-5 on the "Other Project Information" document, provide the information in a single file named "projinfo.pdf". Click on "Add Attachments" in Field 11 to attach file.

Also, attach the following file:

- **Budget for DOE, or Non-DOE, Federally Funded Research and Development Center (FFRDC) Contractor, if applicable.**
  If a DOE, or Non-DOE, FFRDC contractor is to perform a portion of the work, you must provide a DOE Field Work Proposal in accordance with the requirements in DOE Order 412.1 Work Authorization System. This order and the DOE Field Work Proposal form are available at http://grants.pr.DOE.gov. Use up to 10 letters of the FFRDC name (plus .pdf) as the file name (e.g., lanl.pdf or anl.pdf), and click on "Add Attachments" in Field 11 to attach. If a non-DOE FFRDC, prepare a document that provides the equivalent data of the DOE field work proposal. Name and attach as described above.

3. RESEARCH AND RELATED Senior/Key Person.
Complete this form before the Budget form to populate data on the Budget form. Beginning with the PD/PI, provide a profile for each senior/key person proposed. A senior/key person is any individual who contributes in a substantive, measurable way to the scientific/technical development or execution of the project, whether or not a salary is proposed for this individual. Subawardees and consultants must be included if they meet this definition. For each senior/key person provide:

Biographical Sketch.
Complete a biographical sketch for each senior/key person and attach in the block provided. The biographical information for each person must not exceed 2 pages when printed on 8.5" by 11" paper with 1-inch margins (top, bottom, left, and right) with font not smaller than 11 point and must include:

Education and Training. Undergraduate, graduate and postdoctoral training, provide institution, major/area, degree and year.

Research and Professional Experience: Beginning with the current position list, in chronological order, professional/academic positions with a brief description.

Publications. Provide a list of up to 10 publications most closely related to the proposed project. For each publication, identify the names of all authors (in the same sequence in which they appear in the publication), the article title, book or journal title, volume number, page numbers, year of publication, and website address if available electronically.

Patents, copyrights and software systems developed may be provided in addition to or substituted for publications.

Synergistic Activities. List no more than 5 professional and scholarly activities related to the effort proposed.

Current and Pending Support
Current and pending support information is not required for this program. Do not attach a Current and Pending Support file.

4. RESEARCH AND RELATED BUDGET.
Complete the Research and Related Budget form in accordance with the instructions on the form (Activate Help Mode to see instructions) and the following instructions. You must complete a separate budget for each year of support requested. The form will generate a cumulative budget for the total project period. You must complete all the mandatory information on the form before the NEXT PERIOD button is activated. You may request funds under any of the categories listed as long as the item and amount are necessary to perform the proposed work, meet all the criteria for allowability under the applicable Federal cost principles, and are not prohibited by the funding restrictions in this announcement (See PART IV, F).

Budget Justification (Field K on the form).
Provide the required supporting information for the following costs (See R&R Budget instructions): equipment; domestic and foreign travel; participant/trainees; material and supplies; publication; consultant services; ADP/computer services; subaward/consortium/contractual; equipment or facility rental/user fees; alterations and renovations; and indirect cost type. Where applicable, note cost basis as in written quote, historical cost, etc. Provide any other information you wish to submit to justify your budget request. Attach a single budget justification file for the entire project period in Block K. The file automatically carries over to each budget year.

5. R&R SUBAWARD BUDGET ATTACHMENT(S) FORM.

Budgets for Subawardees, other than DOE FFRDC Contractors. You must provide a separate cumulative R&R budget for each subawardee that is expected to perform work estimated to be more than $100,000 or 50 percent of the total work effort (whichever is less). Download the R&R Budget Attachment from the R&R SUBAWARD BUDGET ATTACHMENT(S) FORM and e-mail it to each subawardee that is required to submit a separate budget. Note: Subwardees must have installed PureEdge Viewer before they can complete the form. After the Subawardee has e-mailed its completed budget back to you, attach it to one of the blocks provided on the form. Use up to 10 letters of the subawardee's name (plus .xfd) as the file name (e.g., ucla.xfd or energyres.xfd).

6. SF-LLL DISCLOSURE OF LOBBYING ACTIVITIES. If applicable, complete SF- LLL. Applicability: If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the grant/cooperative agreement,

you must complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying."

D. SUBMISSIONS FROM SUCCESSFUL APPLICANTS.

- Successful applicants must submit the information listed below not later than 14 calendar days after notification of selection. Applicants who fail to provide the information within the required time period may be eliminated from further consideration.

What to submit	Required Form or Format
Designated Responsible Employee for complying with national policies prohibiting discrimination. Provide organization name, project title, DOE application tracking number and the name, title, and phone number of Designated Responsible Employee for complying with national policies prohibiting discrimination (See 10 CFR 1040.5).	No special format. E-mail information to: jeff.fogg@nuclear.energy.gov

E. SUBMISSION DATES AND TIMES.

1. Pre-application Due Date.

- Pre-applications are not required.

2. Application Due Date.

- Applications must be received by 10/11/2005, not later than 8:00 PM Eastern Time. You are encouraged to transmit your application well before the deadline. APPLICATIONS RECEIVED AFTER THE DEADLINE WILL NOT BE REVIEWED OR CONSIDERED FOR AWARD.

- Applications may be submitted at any time prior to the expiration of this notice.

F. FUNDING RESTRICTIONS.

Cost Principles. Costs must be allowable in accordance with the applicable Federal cost principles referenced in 10 CFR part 600.

Pre-award Costs. Recipients may charge to an award resulting from this announcement pre-award costs that were incurred within the ninety (90) calendar day period immediately preceding the effective date of the award, if the costs are allowable in accordance with the applicable Federal cost principles referenced in 10 CFR part 600. Recipients must obtain the prior approval of the contracting officer for any pre-award costs that are for periods greater than this 90-day calendar period.

Pre-award costs are incurred at the applicant's risk. DOE is under no obligation to reimburse such costs if for any reason the applicant does not receive an award or if the award is made for a lesser amount than the applicant expected.

G. OTHER SUBMISSION AND REGISTRATION REQUIREMENTS

1. Where to Submit.

APPLICATIONS MUST BE SUBMITTED THROUGH GRANTS.GOV TO BE CONSIDERED FOR AWARD. Submit electronic applications through the "Apply for Grants" function at www.Grants.gov. If you have problems completing the registration

process or submitting your application, call Grants.gov at 1-800-518-4726 or send an email to support@grants.gov.

2. **Registration Process.**
   You must COMPLETE the one-time registration process (all steps) before you can submit your first application through Grants.gov (See www.grants.gov/GetStarted). **We recommend that you start this process at least two weeks before the application due date**. It may take 14 days or more to complete the entire process. Use the Grants.gov Organizational Registration Checklists at http://www.grants.gov/assets/OrganizationRegCheck.doc to guide you through the process. IMPORTANT: During the CCR registration process, you will be asked to designate an E-Business Point of Contact (EBIZ POC). The EBIZ POC must obtain a special password called an MPIN.

Part V - APPLICATION REVIEW INFORMATION

A. CRITERIA

1. Initial Review Criteria.

- Prior to a comprehensive merit evaluation, DOE will perform an initial review to determine that (1) the applicant is eligible for an award; (2) the information required by the announcement has been submitted; (3) all mandatory requirements are satisfied; (4) the proposed project is responsive to the objectives of the funding opportunity announcement; and (5) the applicant does not represent an unacceptable level of risk as determined by DOE.

2. Merit Review Criteria.

a. EVALUATION CRITERIA for MILLIWATT RPS (10-100 milliwatts)

Criterion 1 Conceptual Design and Technical Readiness (40 Points):

DOE will evaluate the adequacy of the conceptual design and technical readiness based on the following:

1. The extent to which the conceptual design is properly developed, well-integrated and achieves the objectives identified in the Statement of Objectives. Applicants must provide an adequate (qualitative and quantitative) description of how these objectives/requirements will be reached and to what extent.

2. The likelihood of success and innovativeness of the proposed technical approach. The extent of prior use or application of the proposed conceptual design and appropriateness of how the prior work relates to the proposed application will be considered for assessing the likelihood of success. The degree of novel uses of existing technologies to achieve the objectives of the project will be considered for technical innovativeness.

3. For the milliwatt system only, the Government's evaluation will favorably consider systems capable of surviving (and remaining functional) high shock loads, provided that capability does not overly compromise the other required operational parameters.

Criterion 2 Understanding of Requirements and Technical Approach (40 Points):

DOE will evaluate the Applicant's understanding of the conceptual design requirements in the Statement of Objectives and the knowledge of risks and trade-offs to conceptually design the RPS.

1. Demonstrate an understanding of the specific needs and conceptual design requirements identified in the Statement of Objectives.

Provide a complete and clear description of the proposed work with respect to meeting the needs/requirements.

2. Demonstrate an understanding of the present state of the art in RPS technology as well as an understanding of the key issues that need to be addressed to help meet program goals.

3. Address the extent to which the concept identifies and resolves issues to assure that the system can be manufactured in a reasonable time frame.

Criterion 3 Feasibility (20 Points):

The likelihood that the proposed work can be accomplished within the proposed budget by the technical staff, given their experience and expertise, past performance on activities related to this effort.

b. EVALUATION CRITERIA for MULTIWATT RPS (1-20 watts)

Criterion 1 Conceptual Design and Technical Readiness (40 Points):

DOE will evaluate the adequacy of the conceptual design and technical readiness based on the following:

1. The extent to which the conceptual design is properly developed, well-integrated and achieves the objectives identified in the Statement of Objectives. Applicants must provide an adequate (qualitative and quantitative) description of how these objectives/requirements will be reached and to what extent.

2. The likelihood of success and innovativeness of the proposed technical approach. The extent of prior use or application of the proposed conceptual design and appropriateness of how the prior work relates to the proposed application will be considered for assessing the likelihood of success. The degree of novel uses of existing technologies to achieve the objectives of the project will be considered for technical innovativeness.

Criterion 2 Understanding of Requirements and Technical Approach (40 Points):

DOE will evaluate the Applicant's understanding of the conceptual design requirements in the Statement of Objectives and the knowledge of risks and trade-offs to conceptually design the RPS.

1. Demonstrate an understanding of the specific needs and conceptual design requirements identified in the Statement of Objectives. Provide a complete and clear description of the proposed work with respect to meeting the needs/requirements.

2. Demonstrate an understanding of the present state of the art in RPS technology as well as an understanding of the key issues that need to be addressed to help meet program goals.

3. Address the extent to which the concept identifies and resolves issues to assure that the system can be manufactured in a reasonable time frame.

Criterion 3 Organization, Program Management, and Personnel Qualifications (20 Points):

The likelihood that the proposed work can be accomplished within the proposed budget by the technical staff, given their experience and expertise, past performance on activities related to this effort.

Weighting of Criteria

The criteria will be based on a maximum of 100 points, and individually weighted as indicated above.

Programmatic Selection Considerations

The selection official will consider the following program policy factors in the selection:

1. Diverse approaches
2. Approaches that complement other efforts

B. REVIEW AND SELECTION PROCESS.

1. Merit Review.

- Applications that pass the initial review will be subjected to a merit review in accordance with the guidance provided in the "Department of Energy Merit Review Guide for Financial Assistance and Unsolicited Proposals." This guide is available under Financial Assistance, Regulations and Guidance at http://professionals.pr.DOE.gov/ma5/ma-5web.nsf/?Open.

2. Selection.

- The Selection Official will consider the merit review recommendation, program policy factors, and the amount of funds available. Proposals that would require DOE funds exceeding the Ceiling as defined in Part II Section C of this announcement will not be considered for award.

3. Discussions and Award.

- The Government may enter into discussions with a selected applicant for any reason deemed necessary, including but not limited to: (1) the budget is not appropriate or reasonable for the requirement; (2) only a portion of the application is selected for award; (3) the Government needs additional information to determine that the recipient is capable of complying with the requirements in 10 CFR part 600; and/or (4) special

terms and conditions are required. Failure to resolve satisfactorily the issues identified by the Government will preclude award to the applicant.

C. ANTICIPATED NOTICE OF SELECTION AND AWARD DATES.

- DOE anticipates notifying applicants selected for award by December 01, 2005 and making awards by December 31, 2005.

Part VI - AWARD ADMINISTRATION INFORMATION

A. AWARD NOTICES.

1. Notice of Selection.

- DOE will notify applicants selected for award. This notice of selection is not an authorization to begin performance. (See Part IV.G with respect to the allowability of pre-award costs.)

  Organizations whose applications have not been selected will be advised as promptly as possible. This notice will explain why the application was not selected.

2. Notice of Award.

- A Notice of Financial Assistance Award issued by the contracting officer is the authorizing award document. It normally includes, either as an attachment or by reference: 1. Special Terms and Conditions; 2. Applicable program regulations, if any; 3. Application as approved by DOE; 4. DOE assistance regulations at 10 CFR part 600, or, for Federal Demonstration Partnership (FDP) institutions, the FDP terms and conditions; 5. National Policy Assurances To Be Incorporated As Award Terms; 6. Budget Summary; and 7. Federal Assistance Reporting Checklist, which identifies the reporting requirements.

B. ADMINISTRATIVE AND NATIONAL POLICY REQUIREMENTS.

1. Administrative Requirements.

The administrative requirements for DOE grants and cooperative agreements are contained in 10 CFR part 600 (See: http://ecfr.gpoaccess.gov), except for grants made to Federal Demonstration Partnership (FDP) institutions. The FDP terms and conditions and DOE FDP agency specific terms and conditions are located on the National Science Foundation web site at http://www.nsf.gov/awards/managing/fed_dem_part.jsp.

2. Special Terms and Conditions and National Policy Requirements.

Special Terms and Conditions and National Policy Requirements.
The DOE Special Terms and Conditions for Use in Most Grants and Cooperative Agreements and National Policy Assurances To Be Incorporated As Award Terms are located at http://grants.pr.DOE.gov.

Intellectual Property Provisions.
The standard DOE financial assistance intellectual property provisions applicable to the various types of recipients are located at http://www.gc.DOE.gov/techtrans/sipp_matrix.html.

3. **Statement of Substantial Involvement**. DOE anticipates having substantial involvement during the project period, through advice, intervention, integration with other awardees performing related activities, and technical transfer activities. DOE is responsible for:

- Conducting a program review meeting and participating in recipient's progress meetings via conference calls. This meeting will take place at the midpoint of the project.
- Ensuring that the project achieves the intended results by reviewing and concurring on project work plans and deliverables.
- Additional monitoring to permit specified kinds of direction or redirection of the work.

Recipient's responsibilities. The recipient is responsible for performing the activities supported by this award, including;

- Developing a conceptual design, submitting the conceptual design to DOE for review, and resolving DOE's comments;
- Managing and conducting the project activities, including providing the required personnel, facilities, equipment, supplies and services;
- Attending the program review meeting and reporting project status. At the review meeting, the recipient will provide progress status and issues.
- Present mid-term and final briefings to DOE and NASA management. The mid-term briefing will be held at the awardee's facility, and the final briefing will be held at a DOE arranged facility in Germantown, MD.
- Prepare Final Technical Report on work.

C. REPORTING.

Reporting requirements are identified on the Federal Assistance Reporting Checklist, DOE F 4600.2, attached to the award agreement. See Appendix A for the proposed Checklist for this program**.**

PART VII - QUESTIONS/AGENCY CONTACTS

A. QUESTIONS

- Questions regarding the content of the announcement must be submitted through the "Submit Question" feature of the DOE Industry Interactive Procurement System (IIPS) at http://e-center.DOE.gov. Locate the program announcement on IIPS and then click on the "Submit Question" button. Enter required information. You will receive an electronic notification that your question has been answered. DOE/NNSA will try to respond to a question within 3 days, unless a similar question and answer have already been posted on the website.

- Questions relating to the registration process, system requirements, how an application form works, or the submittal process must be directed to Grants.gov at 1-800-518-4726 or support@grants.gov. DOE/NNSA cannot answer these questions.

B. AGENCY CONTACT

Name: Jeffrey C. Fogg
E-mail: jeff.fogg@nuclear.energy.gov
FAX: (208) 526-5548

Note: All questions regarding the announcement, the registration process, or the application must be submitted electronically as described in paragraph A above.

PART VIII - OTHER INFORMATION

A. MODIFICATIONS.

Notices of any modifications to this announcement will be posted on Grants.gov and the DOE Industry Interactive Procurement System (IIPS). You can receive an email when a modification or an announcement message is posted by joining the mailing list for this announcement through the link in IIPS. When you download the application at Grants.gov, you can also register to receive notifications of changes through Grants.gov.

B. GOVERNMENT RIGHT TO REJECT OR NEGOTIATE.

DOE reserves the right, without qualification, to reject any or all applications received in response to this announcement and to select any application, in whole or in part, as a basis for negotiation and/or award.

C. COMMITMENT OF PUBLIC FUNDS.

The Contracting Officer is the only individual who can make awards or commit the Government to the expenditure of public funds. A commitment by other than the Contracting Officer, either explicit or implied, is invalid.

D. PROPRIETARY APPLICATION INFORMATION.

Patentable ideas, trade secrets, proprietary or confidentional commercial or financial information, disclosure of which may harm the applicant, should be included in an application only when such information is necessary to convey an understanding of the proposed project. The use and disclosure of such data may be restricted, provided the applicant includes the following legend on the first page of the project narrative and specifies the pages of the application which are to be restricted:

"The data contained in pages _____ of this application have been submitted in confidence and contain trade secrets or proprietary information, and such data shall be used or disclosed only for evaluation purposes, provided that if this applicant receives an award as a result of or in connection with the submission of this application, DOE shall have the right to use or disclose the data herein to the extent provided in the award. This restriction DOEs not limit the government's right to use or disclose data obtained without restriction from any source, including the applicant."

To protect such data, each line or paragraph on the pages containing such data must be specifically identified and marked with a legend similar to the following:

"The following contains proprietary information that (name of applicant) requests not be released to persons outside the Government, except for purposes of review and evaluation."

E. EVALUATION AND ADMINISTRATION BY NON-FEDERAL PERSONNEL.

In conducting the merit review evaluation, the Government may seek the advice of qualified non-Federal personnel as reviewers. The Government may also use non-Federal personnel to conduct routine, non-discretionary administrative activities. The applicant, by submitting its application, consents to the use of non-Federal reviewers/administrators. Non-Federal reviewers must sign conflict of interest and non-disclosure agreements prior to reviewing an application. Non-Federal personnel conducting administrative activities must sign a non-disclosure agreement.

F. INTELLECTUAL PROPERTY DEVELOPED UNDER THIS PROGRAM.

Patent Rights. The government will have certain statutory rights in an invention that is conceived or first actually reduced to practice under a DOE award. 42 U.S.C. 5908 provides that title to such inventions vests in the United States, except where 35 U.S.C. 202 provides otherwise for nonprofit organizations or small business firms. However, the Secretary of Energy may waive all or any part of the rights of the United States subject to certain conditions. (See "Notice of Right to Request Patent Waiver" in paragraph G below.)

Rights in Technical Data. Normally, the government has unlimited rights in technical data created under a DOE agreement. Delivery or third party licensing of proprietary software or data developed solely at private expense will not normally be required except as specifically negotiated in a particular agreement to satisfy DOE's own needs or to insure the commercialization of technology developed under a DOE agreement.

Special Protected Data Statutes. This program is covered by a special protected data statute. The provisions of the statute provide for the protection from public disclosure, for a period of up to five (5) years from the development of the information, of data that would be trade secret, or commercial or financial information that is privileged or confidential, if the information had been obtained from a non-Federal party. Generally, the provision entitled, Rights in Data – Programs Covered Under Special Protected Data Statutes, (10 CFR 600 Appendix A to Subpart D), would apply to an award made under this announcement. This provision will identify data or categories of data first produced in the performance of the award that will be made available to the public, notwithstanding the statutory authority to withhold data from public dissemination, and will also identify data that will be recognized by the parties as protected data.

G. NOTICE OF RIGHT TO REQUEST PATENT WAIVER.

Applicants may request a waiver of all or any part of the rights of the United States in inventions conceived or first actually reduced to practice in performance of an agreement as a result of this announcement, in advance of or within 30 days after the effective date of the award. Even if such advance waiver is not requested or the request is denied, the recipient will have a continuing right under the award to request a waiver of the rights of the United States in identified inventions, i.e., individual inventions conceived or first actually reduced to practice in performance of the award. Any patent waiver that may be granted is subject to certain terms and conditions in 10 CFR 784.

Domestic small businesses and domestic nonprofit organizations will receive the patent rights clause at 37 CFR 401.14, i.e., the implementation of the Bayh-Dole Act. This clause permits domestic small business and domestic nonprofit organizations to retain title to subject inventions. Therefore, small businesses and nonprofit organizations do not need to request a waiver.

H. NOTICE REGARDING ELIGIBLE/INELIGIBLE ACTIVITIES.

Eligible activities under this program include those which describe and promote the understanding of scientific and technical aspects of specific energy technologies, but not those which encourage or support political activities such as the collection and dissemination of information related to potential, planned or pending legislation.

I. SECURITY CONSIDERATIONS

System designs and related technology for milliwatt and multiwatt RPS are subject to International Traffic in Arms Regulations (ITAR) restrictions.

J. OTHER CONSIDERATIONS

International Traffic in Arms Regulations Requirement. Each applicant, upon receipt of an award, must comply with each and every provision of the International Traffic in Arms Regulations, as found in 22 CFR, *et seq*., specifically including without limitation each and every requirement and/or prohibition set forth and/or referenced in Section 123.20 of the Regulations entitled "**Nuclear related controls.**"

DEAR 952.204-2 Security Requirements. Each applicant, upon receipt of an award, must also comply with each and every provision of **DEAR 952.204-2** entitled "**Security Requirements**". In that regard, **DEAR 952.204-2** shall be incorporated into each and every award made pursuant to this announcement. With respect to **DEAR 952.204-2**, each successful applicant will be required to assume a duty to safeguard all classified information, special nuclear material, and other DOE property in accordance with DOE security regulations and requirements. This obligation will include becoming responsible for safeguarding all classified information and protecting against sabotage, espionage, loss or theft of any classified documents and materials in each successful applicant's possession in connection with the performance of any work performed under each award. All definitions set forth and/or referenced in **DEAR 952.204-2** shall be binding on each successful applicant. In addition, each successful applicant must not permit any individual to have access to any classified information, except in accordance with the Atomic Energy Act of 1954, as amended, Executive Order 12356, and DOE's regulations or requirements applicable to the particular level and category of classified information to which access is required. As part of this responsibility, each successful applicant will also be required to comply with each and every aspects of **DEAR 952.204-2**, including without limitation each and every requirement and/or prohibition relating to and/or arising from the "**Foreign Ownership, Control or Influence**" provisions in **DEAR 952.204-2**. Finally, each successful applicant may also become subject to criminal liability for violating the laws of the United States as specifically referenced in **DEAR 952.204-2.** With these things in mind, each applicant is encourage to read, and to become completely familiar with, **DEAR 952.204-2** prior to submitting an application.

DEAR 952.204-71 Sensitive Foreign Nations Controls Requirements. Each applicant, upon receipt of an award, must also comply with each and every provision of **DEAR 952.204-71** entitled "**Sensitive Foreign Nations Controls** ". In that regard, **DEAR 952.204-71** shall be incorporated into each and every award made pursuant to this announcement. In that regard, each successful applicant must agree to comply with all "**Sensitive Foreign Nations Controls**" requirements attached to the award, relating to those countries, which may from time to time, be identified to the applicant by written notice as sensitive foreign nations. A successful applicant will be given the opportunity to terminate any work under an award upon at least 60 days' prior written notice to the contracting officer making the award if the successful applicant is unable, without substantially interfering with its policies or without adversely impacting its performance to continue any work under an award as a result of such notification.

APPENDIX A – FEDERAL ASSISTANCE REPORTING CHECKLIST AND INSTRUCTIONS

1. Identification Number: DE-PS07-05ID14711	2. Program/Project Title: 81.121 - Small Radioisotope Power System

3. Recipient: TBD

4. Reporting Requirements:			Frequency	No. of Copies	Addressees
MANAGEMENT REPORTING					
X	Progress Report		Q[1]	via Email	A, B, C
X	Special Status Report		A[1]	via Email	A, B, C
SCIENTIFIC/TECHNICAL REPORTING					
(Reports/Products must be submitted with appropriate DOE F 241.					
	Report/Product	Form			
X	Final Scientific/Technical Report	DOE F 241.3	F[1]	via Email & elink	A, B, C, D
X	Conference papers/proceedings*	DOE F 241.3	A[1]	via Email	A, B, C
	Software/Manual	DOE F 241.3			
	Other (see Special Instructions)	DOE F 241.3			
*Scientific and technical conferences only					
FINANCIAL REPORTING					
	SF-269, Financial Status Report				
X	SF-269A, Financial Status Report (Short Form)		F[1]	via Email	A
	SF-272, Federal Cash Transactions Report				
CLOSEOUT REPORTING					
X	Patent Certification		F[1]	2	Instructions will be
X	Property Certification		F[1]	1	provided prior to
	Other (see Special Instructions)				award close-out.
OTHER REPORTING					
	Other (see Special Instructions)				

FREQUENCY CODES AND DUE DATES:

A - Within 5 calendar days after events or as specified

F - Final; 90 calendar days after expiration of the award

Y - Yearly; 90 days after the end of the reporting period

S - Semiannually; within 30 days after the end of the reporting period

Q - Quarterly; within 30 days after the end of the reporting period

5. Special Instructions:

1 - In addition to the Federal Assistance Reporting Instructions, see Special Instructions - Continued, Page 36.

Federal Assistance Reporting Instructions

I. MANAGEMENT REPORTING

Progress Report

The Progress Report must provide a concise narrative assessment of the status of work and include the following information and any other information identified under Special Instructions on the Federal Assistance Reporting Checklist:

1. The DOE award number and name of the recipient.
2. The project title and name of the project director/principal investigator.
3. Date of report and period covered by the report.
4. A comparison of the actual accomplishments with the goals and objectives established for the period and reasons why the established goals were not met.
5. A discussion of what was accomplished under these goals during this reporting period, including major activities, significant results, major findings or conclusions, key outcomes or other achievements. This section should not contain any proprietary data or other information not subject to public release. If such information is important to reporting progress, do not include the information, but include a note in the report advising the reader to contact the Principal Investigator or the Project Director for further information.
6. Cost Status. Show approved budget, by budget period and actual costs incurred. If cost sharing is required break out by DOE share, recipient share, and total costs.
7. Schedule Status. List milestones, anticipated completion dates and actual completion dates. If you submitted a project management plan with your application, you must use this plan to report schedule and budget variance. You may use your own project management system to provide this information.
8. Any changes in approach or aims and reasons for change. Remember significant changes to the objectives and scope require prior approval by the contracting officer.
9. Actual or anticipated problems or delays and actions taken or planned to resolve them.
10. Any absence or changes of key personnel or changes in consortium/teaming arrangement.
11. A description of any product produced or technology transfer activities accomplished during this reporting period, such as:
    A. Publications (list journal name, volume, issue); conference papers; or other public releases of results. Attach or send copies of public

releases to the DOE Project Officer identified in Block 11 of the Notice of Financial Assistance Award.

B. Web site or other Internet sites that reflect the results of this project.

C. Networks or collaborations fostered.

D. Technologies/Techniques.

E. Inventions/Patent Applications.

F. Other products, such as data or databases, physical collections, audio or video, software or netware, models, educational aid or curricula, instruments or equipment.

Special Status Report

The recipient must report the following events by e-mail as soon as possible after they occur:

1. Developments that have a significant favorable impact on the project.

2. Problems, delays, or adverse conditions which materially impair the recipient's ability to meet the objectives of the award or which may require DOE to respond to questions relating to such events from the public. For example, the recipient must report any of the following incidents and include the anticipated impact and remedial action to be taken to correct or resolve the problem/condition:

   a. Any single fatality or injuries requiring hospitalization of five or more individuals.

   b. Any significant environmental permit violation.

   c. Any verbal or written Notice of Violation of any Environmental, Safety, and Health statutes or regulations.

   d. Any incident, which causes a significant process or hazard control system failure.

   e. Any event, which is anticipated to cause a significant schedule slippage or cost increase.

   f. Any damage to Government-owned equipment in excess of $50,000.

   g. Any other incident that has the potential for high visibility in the media.

II. SCIENTIFIC/TECHNICAL REPORTS

Final Scientific/Technical Report

Content. The final scientific/technical report must include the following information and any other information identified under Special Instructions on the Federal Assistance Reporting Checklist:

1. Identify the DOE award number; name of recipient; project title; name of project director/principal investigator; and consortium/teaming members.

2. Display prominently on the cover of the report any authorized distribution limitation notices, such as patentable material or protected data. Reports delivered without such notices may be deemed to have been furnished with unlimited rights, and the Government assumes no liability for the disclosure, use or reproduction of such reports.

3. Provide an executive summary, which includes a discussion of 1) how the research adds to the understanding of the area investigated; 2) the technical effectiveness and economic feasibility of the methods or techniques investigated or demonstrated; or 3) how the project is otherwise of benefit to the public. The discussion should be a minimum of one paragraph and written in terms understandable by an educated layman.

4. Provide a comparison of the actual accomplishments with the goals and objectives of the project.

5. Summarize project activities for the entire period of funding, including original hypotheses, approaches used, problems encountered and departure from planned methodology, and an assessment of their impact on the project results. Include, if applicable, facts, figures, analyses, and assumptions used during the life of the project to support the conclusions.

6. Identify products developed under the award and technology transfer activities, such as:

   a. Publications (list journal name, volume, issue), conference papers, or other public releases of results. If not provided previously, attach or send copies of any public releases to the DOE Project Officer identified in Block 11 of the Notice of Financial Assistance Award;

   b. Web site or other Internet sites that reflect the results of this project;

   c. Networks or collaborations fostered;

   d. Technologies/Techniques;

   e. Inventions/Patent Applications, licensing agreements; and

   f. Other products, such as data or databases, physical collections, audio or video, software or netware, models, educational aid or curricula, instruments or equipment.

7. For projects involving computer modeling, provide the following information with the final report:

   a. Model description, key assumptions, version, source and intended use;

   b. Performance criteria for the model related to the intended use;

   c. Test results to demonstrate the model performance criteria were met (e.g., code verification/validation, sensitivity analyses, history matching with lab or field data, as appropriate);

   d. Theory behind the model, expressed in non-mathematical terms;

e. Mathematics to be used, including formulas and calculation methods;

f. Whether or not the theory and mathematical algorithms were peer reviewed, and, if so, include a summary of theoretical strengths and weaknesses;

g. Hardware requirements; and

h. Documentation (e.g., users guide, model code).

Electronic Submission. The final scientific/technical report must be submitted electronically via the DOE Energy Link System (E-Link) at http://www.osti.gov/elink-2413.

Electronic Format. Reports must be submitted in the ADOBE PORTABLE DOCUMENT FORMAT (PDF) and be one integrated PDF file that contains all text, tables, diagrams, photographs, schematic, graphs, and charts. Materials, such as prints, videos, and books, that are essential to the report but cannot be submitted electronically, should be sent to the DOE Award Administrator at the address listed in Block 12 of the Notice of Financial Assistance Award.

Submittal Form. The report must be accompanied by a completed electronic version of DOE Form 241.3, "U.S. Department of Energy (DOE), Announcement of Scientific and Technical Information (STI)." You can complete, upload, and submit the DOE F.241.3 online via E-Link. You are encouraged not to submit patentable material or protected data in these reports, but if there is such material or data in the report, you must: (1) clearly identify patentable or protected data on each page of the report; (2) identify such material on the cover of the report; and (3) mark the appropriate block in Section K of the DOE F 241.3. Reports must not contain any limited rights data (proprietary data), classified information, information subject to export control classification, or other information not subject to release. Protected data is specific technical data, first produced in the performance of the award that is protected from public release for a period of time by the terms of the award agreement.

Conference Papers/Proceedings

Content. The recipient must submit a copy of any conference papers/proceedings, with the following information: (1) Name of conference; (2) Location of conference; (3) Date of conference; and (4) Conference sponsor.

Electronic Submission. Scientific/technical conference paper/proceedings must be submitted electronically via the DOE Energy Link System (E-Link) at http://www.osti.gov/elink-2413. Non-scientific/technical conference papers/proceedings must be sent to the URL listed on the Reporting Checklist.

Electronic Format. Conference papers/proceedings must be submitted in the ADOBE PORTABLE DOCUMENT FORMAT (PDF) and be one integrated PDF file that contains all text, tables, diagrams, photographs, schematic, graphs, and charts. If the proceedings cannot be submitted electronically, they should be sent to the DOE Award Administrator at the address listed in Block 12 of the Notice of Financial Assistance Award.

Submittal Form. Scientific/technical conference papers/proceedings must be accompanied by a completed DOE Form 241.3. The form and instructions are available on E-Link at http://www.osti.gov/elink-2413. This form is not required for non-scientific or non-technical conference papers or proceedings.

Software/Manual

Content. Unless otherwise specified in the award, the following must be delivered: source code, the executable object code and the minimum support documentation needed by a competent user to understand and use the software and to be able to modify the software in subsequent development efforts.

Submission. Software/manual submissions must be sent to the DOE Award Administrator identified in Block 12 of the Notice of Financial Assistance Award. The submission must be sent on a CD-ROM, 3.5 "floppy disk", or zip disk.

Submittal Form. Each software deliverable and its manual must be accompanied by a completed DOE Form 241.4 "Announcement of U.S. Department of Energy Computer Software." The form and instructions are available on E-Link at http://www.osti.gov/estsc/doef2414.pdf.

III. FINANCIAL REPORTING

Recipients must complete the financial reports identified on the Reporting Checklist in accordance with the report instructions. These standard forms are available at http://www.whitehouse.gov/omb/grants/index.html. Fillable forms are available at http://grants.pr.doe.gov.

IV. CLOSEOUT REPORTS

Final Invention and Patent Report

The recipient must provide a DOE Form 2050.11, "PATENT CERTIFICATION." This form is available at http://www.directives.doe.gov/pdfs/forms/2050-11.pdf and http://grants.pr.doe.gov/.

Property Certification

The recipient must provide the Property Certification, including the required inventories of non-exempt property, located at http://grants.pr.doe.gov/.

SPECIAL INSTRUCTIONS - CONTINUED

A. Your performance in providing on-time report deliverables will be monitored by Procurement Services Division (PSD), Idaho Operations Office, Department of Energy. Reports not received by the specified due date are late. Overdue, inaccurate, or non-conforming reports are not acceptable. PSD will withhold payments or take other administrative actions as needed for non-compliance with reporting requirements (see 10 CFR 600.24). Only the Contracting Officer may waive or excuse required reports.

B. In order for accurate logging and processing of reports, it is critical that reports be sent to all the specified addressees and in the manner requested. PSD receives a copy of all reports via **psdrept@id.doe.gov.** The message subject line must include the award number.

   Message Subject Line Example: DE-FC07-02ID99999, 4Q SF 269A Report.

C. The official award number must also be identified on all reports. A project number, if assigned by the program manager, may also be included, but is not a substitute for the official award number.

D. Report forms and additional report submittal guidance may be found on PSD's Internet web site at

   http://www.id.doe.gov/doeid/psd/proc-div.html. General guidance, in a question and answer format, is listed under "FA Report Submittal Guidance."

E. Close-out Reporting. Additional, specific instructions concerning close-out documents to be provided to PSD will be sent prior to the project completion date. Close-out documents are due not later than 90 calendar days after the project completion date shown in NFAA Block 7.

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REPORT ADDRESSEES

A. Procurement Services Division (PSD): psdrept@id.doe.gov

B. DOE Project Manager: See NFAA Block 11 for the Project Manager's Email address.

C. Office of Scientific & Technical Information (OSTI): http://www.osti.gov/elink**.** For E-link information or assistance, please refer to "Contact Information" given at the web site.

(End of Part IV)